August 2002 Monthly Progress Report

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
Last Revised: *Friday, 13-Sep-2002 10:29:48 EDT [NAB]*

Task Assignment 99-001-00
August 2002

MANAGEMENT
GSFC ATR - Dr. J. Green
Raytheon ITSS Task Leader - L. Mayo
Raytheon ITSS Group Manager - L. Mayo

TASK OBJECTIVE: The non-personal services required under this task include performing all necessary functions to manage Raytheon ITSS contract staff supporting the Space Science Data Operations Office (SSDOO). The Raytheon ITSS management team will meet with the SSDOO management team to discuss significant events and contract highlights to be presented to upper management and Headquarters, and current contract issues and concerns.

SIGNIFICANT EVENTS:

- Staff held weekly senior staff meetings.
- Staff is attempting to locate new positions for members of ADC team.
- Staff held a summer picnic at the Goddard Recreation Center.

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
Last Revised: *Friday, 13-Sep-2002 10:23:37 EDT [NAJ]*

Task Assignment 99-003-00
August 2002

ASTROPHYSICS MISSION SUPPORT SERVICES
GSFC ATR - Dr. N. Gehrels
Raytheon ITSS Task Leader - Dr. J. F. Cooper
Raytheon ITSS Group Manager -

TASK OBJECTIVE: This task provides support and consultation services for the Compton Gamma Ray Observatory (CGRO) project scientist in areas of data management, analysis, and archiving for CGRP and for the HIC experiment on the Galileo spacecraft. This support includes attending GRO Science Working Group meetings, aiding target-of-opportunity decisions, monitoring the health of the spacecraft, and presenting GRO papers at scientific meetings. In addition, this task will provide consultation on data products from the HIC.

SIGNIFICANT EVENTS:

1. Task staff made plots of Galileo magnetometer data magnitudes and vector components for all Io flybys for comparison to model data for various empirical fitting parameters. Dipole models do not at all provide good fits for the polar flybys, but empirical parameters representive of upstream compression, downstream relaxation, and Alfven Wing bendback of polar magnetospheric field lines appear more promising.

2. The Task Leader was invited by R. W. Carlson (JPL) to be a co-investigator on a possible Discovery mission proposal for a Europa flyby.

3. The Task Leader discussed [redacted], J. Green, J. King, E. Sittler (Code 692), and R. MacDowall (Code 695) the possibility of a Lead Science Team proposal from Goddard to the NASA Astrobiology Institute on the subject of space environment interactions with prebiotic and habitable planetary objects.

4. The Task Leader is co-organizing a special session on space weathering of solar system and extrasolar bodies with C. Hibbitts (University of Washington) for the Fall 2002 AGU meeting. Invited and contributed paper abstracts are now being reviewed.

5. Task staff reanalyzed EGRET files R24727330-52 and merged these back into the EGRET database.

UPCOMING MILESTONES/EVENTS: Presentations on task-related research will be given at the October 2002 COSPAR meeting in Houston, Texas and at the December 2002 Fall AGU meeting in San Francisco, California.

RELATIONS TO OTHER TASKS: Work on this task is being supplemented by support from the SSDOO project and the two active Jovian System Data Analysis Program contracts with Raytheon ITSS. Funding from another contract on radiolytic chemistry modeling for Europa from the NASA Planetary Atmospheres Program is expected to begin later this year.

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
Last Revised: *Friday, 13-Sep-2002 10:24:46 EDT [NAJ]*

Task Assignment 99-101-00
August 2002

AMASE-MOCHA-CONCAT DEVELOPMENT
GSFC ATR - Dr. C. Cheung
Raytheon ITSS Task Leader - E. Shaya
Raytheon ITSS Group Manage

TASK OBJECTIVE: This task provides support for the development of the object -oriented data base multispectral astrophysics data catalog, AMASE (Astrophysics Multimission Archive Search Engine) as an interface to NASA's astrophysics data holdings. This effort is a collaborative one with the University of Maryland (UMD) Computer Science Department, and frequent interactions with UMD counterparts are expected. The general goal for this performance period is to develop the AM ASE prototype into an astronomical search and discovery engine by expanding the data contents and augmenting the search capabilities. Work includes incorporating astrophysics data from other wavelength bands to complete the electromagnetic spectrum and developing procedures to access remote relational data bases.

SIGNIFICANT EVENTS:

A. DSA:

- Staff worked on XML telemetry language for OMG RFP.
- Staff worked on Executive Summary slides of DAPFA.
- Staff worked on Data Deployment UML diagrams.

B. DSE:

- Staff attended general DSE weekly meetings.
- Staff attended DSE demonstration weekly meetings.

UPCOMING MILESTONES/EVENTS:

- A meeting with SEEDS is anticipated in September 2002.
- DSA ends in October 2002.

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Task Assignment 99-102-00
August 2002

ADC
GSFC ATR - Dr. C. Cheung
Raytheon ITSS Task Leader - J. Gass
Raytheon ITSS Group Manager -

TASK OBJECTIVE: This task operates the Astronomical Data Center, develops multispectral astrophysical metadata interfaces, and provides FITS data format support for the SSDOO.

SIGNIFICANT EVENTS:

- Staff answered two science/technical questions.
- Staff continued work on converting legacy datasets to final XML, processing 33 catalogs and 36 journal tables to XML using the legacy pipeline.
- Staff started work on converting SGML files acquired from the University of Chicago Press. Using the SGML pipeline software the staff was able to process 15 to final XML.
- Staff received a submittion of the FK5 Cross Index Extension.

UPCOMING PLANS/EVENTS/MILESTONES:

- Staff will encapsulate the ADC data archive into a self-contained environment.
- Staff will copy all ADC research and development materials to tape for shelf storage.
- Staff will provide a matrix for a message to be composed by J. Green notifying the ADC sites visitors about the discontinuation of the ADC services.
- A staff member plans to attend a Website Section 508 Compliant course on September 26, 2002.

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Task Assignment 99-104-00
August 2002

INFRARED/SUBMILLIMETER/RADIO ASTROPHYSICS DATA MANAGEMENT
GSFC ATR - Dr. D. Leisawitz
Raytheon ITSS Task Leader -
Raytheon ITSS Group Manager -

TASK OBJECTIVE: The contractor shall perform the following tasks applicable to each of the NASA astrophysics missions, COBE, IRAS, SWAS, MAP, ISO, SOFIA, MSX, WIRE, SIRTF, 2MASS, and possibly others identified by the government: Planning and Communication, Interactions with Projects, Improving Data Management Processes, Data Processing, Data Archiving and Archive Quality Assurance, Archival Research Support, Miscellaneous, and General Guidelines (as given in the detailed task description).

SIGNIFICANT EVENTS: Staff supported NASA Astrophysics Data Centers Executive Council (ADEC) discussions that involved Code 630/631 activities.

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Task Assignment 99-110-00
August 2002

AUTONOMOUS TECHNOLOGY
GSFC ATR - Dr. M. E. Van Steenberg
Raytheon ITSS Task Leader - R. Dunlap
Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objective of this task is to support the development of a simulation environment that supports autonomous distributed spacecraft control and test science collection techniques using artificial intelligence (AI) technologies. This work is in collaboration with the GSFC's Guidance, Navigation and Control Center and JPL's Automation and Control group. The contractor shall support the following activities and contribute to reports and white papers as appropriate: (a) evaluate Science Quick-Look Analysis Tools (e.g., HEASARC) for use as on-board analysis tools, (b) define Typical Science-Driven Maneuver Automation Requirements, (c) define Typical Science Automation Requirements, (d) define Basic System Architecture, and (e) develop rapidly a prototype to demonstrate key capabilities.

SIGNIFICANT EVENTS: No work was performed during this reporting period.

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Curator: *Natalie Jaquith*
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Task Assignment 99-113-00
August 2002

GLAST
GSFC ATR - R. Fink
Raytheon ITSS Task Leader - J. Palencia
Raytheon ITSS Group Manager -

TASK OBJECTIVE: GLAST is a multipartner gamma-ray survey mission with a GO observation component. The ADF will provide a prototype public archive design using Beowulf and other related technology. The prototype will implement the archive design using the Compton Gamma Ray Observatory EGRET data set. The contractor shall provide personnel to support the following tasks: (1) systems administration support of the Beowulf cluster and (2) programming support as requested for implementing the archive prototype.

SIGNIFICANT EVENTS:

- Staff studied and evaluated two cluster configuration software packages: OSCAR, Bpbath.
- Staff set up the console for the SIMDOG cluster and configured the 12-Processor cluster with OSCAR.
- Staff set up the console for the BLISS cluster and configured the 148-Processor Code 600 cluster with OSCAR.
- Staff assisted in the hardware setup of the 148-Processor Code 600 BLISS cluster.
- Staff assisted in the system administration of the Linux workstations for the Summer HPC/VSEP guests and students.
- Staff assisted in the system administration of HPC's Beowulf clusters (MEDUSA).
- Staff worked on Phd thesis paper "Topological Analysis of Two Interacting Neurons."
- Staff assisted in the system administration of Medusa workstations.
- Staff assisted in the system administration of Glast Beowulf cluster.

UPCOMING MILESTONES/EVENTS:

- Staff will implement C3C, PBS on the 148-processor BLISS Code 600 cluster.
- Staff will implement C3C, PBS on the 12-processor SIMDOG cluster.
- Staff will continue thesis work.

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Task Assignment 99-115-00
August 2002

SWIFT
GSFC ATR - Dr. R. Pisarski
Raytheon ITSS Task Leader - Dr. E. Pier
Raytheon ITSS Group Manager -

TASK OBJECTIVE: Swift is a multipartner gamma-ray burst detection and follow-up observation mission. The Astrophysics Data Facility (ADF) will provide science data processing pipeline design, development, and operations. In addition, the ADF will be responsible for providing Quicklook processing to the Swift Mission Operations Center (MOC) at Pennsylvania State University (PSU). The final outputs of the pipeline processing will be delivered to the HEASARC at GSFC and to project partners in England and Italy.

SIGNIFICANT EVENTS:

- Staff checked in a fixed version of the imagexform tool.
- Staff obtained and installed Swift HEAdas Build2 software from the SSC.
- Staff continued network performance tests with Leicester.
- Staff worked with BAT team to plan BAT pipeline spectral fitting.

UPCOMING MILESTONES/EVENTS:

- Staff will encorporate HEAdas Build2 into Swift processing script and test.
- Staff will obtain current telemetry samples from all three instruments.
- Staff will obtain current ITOS database telemetry format descriptions for all instruments.
- Staff will update Xing telemetry browser/editor configuration.
- Staff will produce FITS files from current telemetry and test the files with the processing script.

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Task Assignment 99-201-00
August 2002

IMAGE
GSFC ATR - R. Burley
Raytheon ITSS Task Leader - C. Klipsch
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of the IMAGE Mission Data System task are to develop, test, and maintain the IMAGE Web data access and display system, the IMAGE data processing system, and the IMAGE data distribution system.

SIGNIFICANT EVENTS:

- Staff met with B. Giles to discuss her ideas on the creation of new Polar, Wind, and Geotail Web pages.
- Staff made changes to Polar Web page.
- Staff created new Polar, Wind, and Geotail main Web page.
- Staff continued work on section 508 compliance.

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Task Assignment 99-202-00
August 2002

MAGNETOSPHERIC MODELING AND ANALYSIS
GSFC ATR - Dr. S. Fung
Raytheon ITSS Task Leader - Dr. L. Tan
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: This task calls for (1) the performance of analysis supporting the development of a new generation of trapped radiation, (2) the documentation and analysis support in an ongoing SSDOO research program on the outer magnetosphere, and (3) ISTP campaign coordination.

SIGNIFICANT EVENTS:

1. Task staff wrote a script to ingest the F10.7 data set into the magnetospheric state parameter database. He also planned a tentative design for the "traffic cop" program and the database query back-end software.

2. Task staff prepared a manuscript entitled "Can cusp originated relativistic electrons be identified in the radiation belt?" (Authors: L. C. Tan and S. F. Fung) and submitted it to Geophysical review letters.

UPCOMING MILESTONES/EVENTS: Task staff is preparing the selection of particle data set that is satisfied for a given query condition of magnetospheric state parameters. The process and data product of such selection will form the basis of the talk entitled "Development of a Magnetospheric State-Based Trapped Radiation Data Base" (Authors: S. F. Fung et al.) to be presented in the 34th COSPAR Scientific Assembly, to be held in Houston, Texas, on October 10-19, 2002.

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
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Task Assignment 99-203-00
August 2002

SPACE SCIENCE VISUALIZATION FACILITY
GSFC ATR - Dr. R. Kessel
Raytheon ITSS Task Leader - J. Friedlander
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The task of the Space Science Visualization Facility within the SSDOO is to support the SSDOO education and outreach activities, scientific analyses, and IMAGE mission activities. Members of the facility will need to work closely with the space science community in order to create appropriate space science videos, illustrations, and displays and to develop overall approaches and procedures for the maintenance of the task.

SIGNIFICANT EVENTS:

1. Staff refined equipment justification for FY03 technical equipment request. Staff also researched equipment and supplies for purchase in order to use final FY02 equipment funds.

2. Staff photographed the NSSDCs' new Beowolf cluster and provided images for science info nuggets.

3. Staff coordinated efforts with summer faculty fellow Marietta Cameron to finalize software capable of taking point data from simulations and creating 3-D objects for solar wind animations .

4. Staff scanned more than 20 photos of an educational conference to be used in a Web site and for a final report.

5. Staff is proud to announce the Sun-Earth Day 2003 Web page has been launched. New information will continue to be added.

6. Staff has created the Division for Planetary Sciences Web site. Staff will be meeting with Lou Mayo to discuss other content that needs to be added. A location for this site is yet to be found.

7. Staff completed several HDTV quality animations. These along with other animations created by the lab were compressed and mixed to create the set of animations playing on the HDTV Plasma screen. Staff now has a set pipeline for creating HDTV animations.

8. Staff rendered multiple HD animations for the Vislab's demo reel including:

- An opening and closing logo
- A tour around the sun
- An animation of the magnetosphere's reaction to solar wind
- A day to night animation of the earth
- An auroral animation
- An animation of a coronal mass ejection
- A tour of the magnetosphere during a coronal mass ejection
- An animation of SOHO data in HDTV resolutions

9. Staff designed and printed SBIR group photos from the national meeting in New Orleans, Louisiana.

10. Staff supported SEC effort of creating educational guideline book by providing a CD full of high resolution images.

UPCOMING MILESTONES/EVENTS:

1. Staff is beginning work on a proposal to host the NASA Public Portal for Web sites.

2. Staff will complete LWS project on Auroral Lights HDTV presentation.

3. Staff will complete work on DPS Web site and make available for October 2002 release.

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Task Assignment 99-204-00
August 2002

SPACE PHYSICS SOFTWARE DEVELOPMENT, SYSTEM MAINTENANCE, AND SPECIAL PROJECTS
GSFC ATR - Dr. R. McGuire
Raytheon ITSS Task Leader - T. Kovalick
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of the space physics development task are to design, develop, document, support, and promote the re-engineering of the SSC Software Systems and the CDAW Graphics Systems. These software systems will support Satellite Situation Center (SSC) Operations, ISTP SPOF, SPDS, STEP, other NASA projects, and the space physics community in general. Accomplishing this objective requires maintenance of the software in both a UNIX and VMS environment, use of appropriate software development tools and methods, development of concise documentation, definition of new magnetospheric field and region models, and communication with scientists and end users both at the NSSDC and in the larger space physics community to ensure that their needs and requirements are being met. This task will work closely with the CDF/graphics task to fulfill its responsibilities. CRUSO in particular will play an important user support role for both SSC and the CDAW Graphics System. It will serve as the first point of contact for users, distribute documentation, answer simple questions, and forward software and science questions to this task and to SSC Operations.

SIGNIFICANT EVENTS:

1. Work on CDAWeb Software: Staff continued testing and modifying the web pages and cgi scripts in order to make them Section 508 compliant. Staff continued investigating the geographic registration problem long suspected by staff and recently reported by a user of the Polar UVI/VIS image data. Staff, in response to user reported problems and generated errors investigated and corrected two problems, one was a performance problem with reading excessively large global attributes in some Cluster data files and one was an orbit plotting problem.

2. CDAWeb Design work: Staff continued thinking about the various requirements and is formulating an approach.

3. Work on SSCWeb Software: Staff completed their work on making the SSCWeb applications Section 508 compliant. Staff is rewriting the calculator servlet so that it will work within the new Java environment. Staff are also pursuing isolating and fixing several user interface issues discovered during the porting effort.

4. CDAWeb Statistics: The statistics include GSFC, RAL, ISAS and EDC: CDAWeb fulfilled 9,504 plotting requests, 12,377 ASCII listing requests and 317 CDF delivery requests, where each request can contain more than one plot/listing/file; (RAL: 51, 36, 7), (ISAS: 204, 17, 3) and (EDC: 4, 0, 0); there were 86,374 total accesses to the rumba CDAWeb HTTP Server. The anonymous ftp site delivered 38,710 CDF files and 128 software/document files to non-staff users. The "overall" ftp statistics file was updated and can be found at http://cdaweb/cdaweb/logs/FTPaccumulative_record.html. The monthly web server and ftp statistics files can be found at http://cdaweb/cdaweb/logs. The web server statistics now include several additional reports, including: "Operating System Report" and "Browser Report".

5. SSC Statistics: Usage statistics from ubatuba, are as follows: There were 54 accesses of the SSC Version 3.0 Main Menu; Locator was executed 1 times; Query was not executed; the Data Base listing was not accessed; the Calculator was not accessed; the File Output option of the system was executed 52 times and the FTP option was executed 45 times.

6. Usage statistics for the Web-based versions of SSC Query and SSC Locator programs are as follows: The query_server was executed a total of 137 times; the tabular_server was executed a total of 1,695 times; the graphical_server was executed 1,396 times for a total of 3,218 accesses, excluding developers. In addition, the SPOF accessed the systems 40 times; SSC Operations staff accessed the systems 10 times. The SSC Web pages (main page as well as any GIF, user's guide, etc.) were accessed 9,552 times, with 128 accesses by SPOF staff and 34 accesses by SSC Operations staff.

7. Mirror Sites: RAL, ISAS and EDC are retrieving their provided data and software updates on a regular basis through their FTP accounts. Usage statistics were received from all three sites this month; these numbers were incorporated into the CDAWeb statistics listed above.

8. Ingest/operational activities: The CDAWeb metadata generator and inventory plot generation software are being executed nightly. As part of this process, any new MAP, IMAGE, LANL, GOES, ACE, FAST, Polar, ISIS and Cluster files are being "ingested" as well. An additional set of KP ACE MFI and SWE files were removed from the system because they have been superseeded by high resolution products. A user reported unusual values in many of the Ulysses KET data files,

after investigating it was determined that all files produced by ESTEC after March 10, 1999, for all instruments on Ulysses, don't appear to contain good values; thus the affected files were removed from CDAWeb and we are working with the data provider to acquire corrected files. The process of copying and compressing all of the ISIS2 CDFs from nssdcftp to rumba continues; it is expected to take approximately two more months. In addition, the master cdf "notes" web pages were updated each week.

9. PWG software reengineering effort: No activity this month.

10. New SPDF web site : No activity this month.

UPCOMING MILESTONES/EVENTS:

1. Staff will assist the ATR with providing documentation and the appropriate level of information to help define meaningful assignments for a new co-op student.

2. Staff will assess the CDAWeb and SSCWeb pages for Section 508 Web Accessibility compliance and report findings to the government web development coordinator for the NSSDC.

3. Staff will continue to work with the IMAGE project personnel and develop the appropriate software to be able to display the best "views" of the IMAGE data through CDAWeb.

4. Staff will continue testing and maintenance on CDAWeb and testing/enhancing all of the plotting and listing software.

5. Staff will continue testing, modifying, and documenting the CDAWlib software and associated Web pages.

6. Staff will continue investigating making 3-D orbit plots available through the SSCWeb system.

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
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Task Assignment 99-205-00
August 2002

SPACE PHYSICS DATA ACQUISITION AND VALUE-ADDED SERVICES
GSFC ATR - Dr. R. McGuire
Raytheon ITSS Task Leader - Dr. H. Hills
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are four-fold: 1. to support space physics and information acquisition for NSSDC, including support for ingest to the near-line/on-line archive and/or for distribution as CD-ROMs; 2. to support value-added space physics services, including operation of the SSC, creation of new composite space physics data/model products, definition of science user requirements for SSDOO systems and other NSSDC data and information systems, and science-expert support for other efforts such as IACG and SPDS as appropriate; 3. to carry out selected archival research and mission planning activities, including publication of results; and 4. to provide logistics support as directed for working meetings related to SPDS, including travel reimbursement.

SIGNIFICANT EVENTS: Work continues to be stopped.

1. DIONAS INGEST:

   a. ISIS: Routine ingest continued at the usual rate.

   b. SAMPEX: Routine ingest of all four datasets continued; also the creation of two CDFs for ingest into CDAWeb.

   c. Wind/WAVES: Ingest of the composite CDFs from three datasets continued normally.

2. OTHER DATA INGEST:

   a. J. King has consented to the ingest of the ASCII version of CCE/CHEM data in NSSDCFTP. It will begin in a few months when DIOnAS activity will be "decompressed". The translation code (VMS binary to ASCII) which was successfully written six years ago is being looked over by H. Leckner to get set for mass production at the time of the DIOnAS activity. (The original was a tape-tape code; Leckner will change it to disk-to-disk.)

   b. Ulysses solar wind and gamma-ray data sets were updated for July 2001 and June 2002, respectively.

   c. The ACE Level 1 CD data set was updated for May to July 2002.

   d. In response to a problem reported with one Ulysses data set by a CDAWeb user, task staff identified a general problem with real variables in Ulysses CDF files generated after March 8, 1999. These files have been removed from public access, and the data file provider at ESTEC, C. Tranquille, has been notified of the problem.

   e. R. J. MacDowall (Code 695) delivered a new CD from the Ulysses SWICS team for Archive Version 2.0 of the SWICS Level 2 data set. This will shortly be ingested into the off-line CD and on-line ftp archives.

   f. An example file of the new ISIS-2 ion composition data set was reviewed. Range limits and file structure were discussed with W. Schar (Emergent), who will submit the final data.

   g. A CDAWeb-compatible master has been finished (using SKTEditor) for the ISEE 1 electron data from Fitzenreiter. There are still two arrays that need some more discussion with Fitzenreiter before they can be displayed and labeled correctly. The plan is to read the existing bare CDF, select the time variables, generate Epoch, then copy the desired variables to make a new CDF.

   h. In response to a request, the Topist output data was checked and it was found that several years of OTT data had been missed in the Topist processing, including 1981, which the requester wants. The missing 1981 data was immediately processed, and was available online the following day. The remaining missed data was online within two more days.

   i. Additional development work was completed and the IBM-written blocked binary data set 78-079A-02J was converted to unblocked ASCII. An earlier request had been satisfied by processing for about two day's worth of data, with the desired data selected by editor. The further development allowed the output file to be automatically named for the data date, and a new file to be generated with each new day. The whole data set was converted and put online

in nssdcftp.

j. J. King and N. Papitashvili expect to begin receiving wind data from MIT thru istp-events. A process was set up to retrieve the data from istp-events and copy it into an anonymous ftp directory on rumba that Natasha can access. It was also set up so that Rita can retrieve data from istp-events if Leckner is not available.

k. Received OK from R. McGuire and Riener Friedel to go ahead and process all the CAMMICE data. Data was retrieved from Friedel's web-site and processing of the idl savesets into CDFs was started, but for some reason the format/structure had changed. Friedel is looking into this.

l. Software was fixed for hel1_h0_crp to place all the records in time order with no times running backwards. The CDFs were moved to CDAWeb for availability.

m. Retrieved 1998 Interball data(it_h0_mfi) from Petrov, and created CDFs for the year and moved them to CDAWeb for availability.

3. Data Set Contacts:

a. Task acquisition scientists submitted summary reports on their active and planned data acquisition activities, for review and discussion with the science group leader and the ATR.

b. Replies are pending from B. Brechwald (U. Iowa) and D. Hamilton (U. Md) on acquisition of VLF data and AMPTE/CCE data, respectively.

c. The Project office for RHESSI was contacted to ascertain their schedule for archiving the data here, according to their PDMP.

d. The AFRL was contacted regarding the archival schedule for SMEI data; the Program Manager (Janet Johnson) has responded that the launch of Coriolis on which SMEI will be the main payload is scheduled for 15 December '02. Release of data for the public (presumably NSSDC also) will be delayed by another nine months. J. King has advised awareness of the existence of SDAC/GSFC and the need for sensitivity to its role for solar data, prior to the eventual archive at the NSSDC.

4. CCSDS Support:

A staff scientist reviewed CCSDS-651.0-W-2 White book: "Producer-Archive Interface Methodology Abstract Standard". Sixteen written change items were submitted, and notice was later received that all of the review comments were incorporated into the new version.

5. ISIS-1 and -2:

Staff began the process of copying all ISIS2 CDFs from nssdcftp to CDAWeb. Each day 4000 CDFs are moved. As of 8/31 we have moved approximately 72000 CDFs over.

6. Support for moving Offline archive to Online archive:

Effort began on supporting the transfer of the old offline tape archive through DIONAS to the DLT archive, with few, if any, of the files going also to nssdcftp. This effort will be under Task 421, and will be charged and reported there. A very brief summary report will also be made to this task. The new script to enter data into a new Offline Transition To Online (OTTO) table was completed and tested in initial form, still subject to developmental changes.

7. Maintenance of NSSDC Information Databases:

a. Corrected typo in OSO 8 BD, added two bib references to it, sent two TRF updates (DOCCON values) to Betty.

b. inserted URLs for the actual data directories/files into the NMC BDs for GE-11B, C, D (spio-00374,5,6).

c. Submitted Database Task Request Order to get permission to add "Doccon" field in TRF via JEDS. (Granted next day.)

d. The TRF population process continued, with circulation of some of the JGR and GRL journal issues.

e. SPDAC received a dataset description update message in July, but it was the same as the current data set description,

so no action was taken.

f. ISEE 1 data pool tapes had been initially given a different new JEDS ID for each instrument involved, plus the ephemeris. Changes were made this month to use only one JEDS ID. The slightly different BDs were combined and edited to make a single BD that covers all participants, and this was sent to P. Ross for insertion into the NMC. A similar operation was started for the ISEE 3 data pool tape.

g. Three new ISEE 3 data sets were entered into NMC (two generated during OMNIWeb work and one a conversion to ASCII). Associated readme files and overview files were also generated and installed on nssdcftp.

8. SSC Ephemeris

a. Ephemeris information was created and updated into the SSC's UNIX data base for 31 spacecraft. Files for five spacecraft were updated for the [ACTIVE.IACG.ELEMENTS] directory.

b. W. Peterson (LASP, Boulder) was provided with a simple transformation code to convert the GOES 12 magnetic field data from East-EARTH-Poleward system to the Geographic system (GEO) so that from there he can reach the GSM system via the SSC routines.

c. The time span of the Helios A & B orbital coverage in the heliospheric web (nssdc/space/helios/heli.html) was extended to their launch dates. A simple code was written to utilize the published Keplerian elements for that period.

d. J. King noticed that in the COHOWeb sometimes the transition of the (inertial) heliographic longitude for PVO, from 359+ to 0.0+ was incorrect; the hourly values that had been interpolated from the daily values showed hourly descent from 359 towards zero, instead of climbing to 360 and sharply dropping to zero. A corrected replacement list was provided to Natasha to fix it. Helios A and B data were also probed to ascertain that such problem cases in them had been fixed over a year ago.

e. To the heliospheric web site has now been added Comets Halley and Giacobini- Zinner, covering 1984 thru 1987. (The prediction was done by the same VMS code that was used for other comets such as Hale-Bopp in the website.)

f. had run on 30 Aug 02 a few hours of data for IMAGE in the SSCWeb. The same time span was also run by a Russian, Ivan Galkin, a few days earlier. He found a discrepancy. Upon running the same period on 31 Aug, the SSC could confirm Galkin's data, but not Taylor's. Taylor was asked to rerun and confirm his data. Apparently there was a transient problem in his machine or the new Ubatuba machine (which has recently replaced Wharfrat).

9. The draft and final versions of SPX 585 were made available via WWW and FTP. SPX 586 was drafted and loaded online. It carries stories on four launches. As usual, a copy of that was emailed to COSPAR. Three WDC SI announcements regarding the launch and assignment of IDs to four missions were sent by e-mail and posted to the Usenet News. Two CCSDS IDs were assigned for future mission/simulation telecommunications.

10. Email was received from B. Heikkila (GSFC) asking about Helio A/B orbit/attitude tapes. They have a large number of them that they want to scratch, but asked us first. We apparently have a much coarser resolution set, considering the number of tapes and the time coverage of each. Information was gathered on what we have for Helios orbit data, and a reply was sent to Heikkila asking for more information about his 125 tapes.

11. MAINTENANCE AND UPDATING ON THE VARIOUS WWW PAGES:

a. Algorithms and Models on WEB:

1. Finished the design of the new ModelWeb home page interface.

2. Made Correction in position of Helios1 and Helios2 and Mag data for Voyager 2 for CohoWeb and FTP site.

3. Added two comets to Heliocentric ephemerides for S/C, Planets, Comets service: Halley and Giacobini-Zinner.

4. Updated ephemerides for Helios1 and Helios2.

Accesses for this month:
CGM 701
IRI model 1953
MSIS model 983
IGRF model 510

TRAP particle model 65
T89 model 21
T96 model 106
Heliospheric Ephemerides 770
IMP-8 daily position ... 13

b. COHOWEB and OMNIWEB systems (data and software)

1. Building(design) of new OMNIWEB and COHOWeb home pages was finished.

Accesses for OMNIWEB: plots/list/scatter: 620 / 424 / 60 = 1104
Accesses for COHOWEB: plots/list: 906 / 59 = 965

c. ATMOWEB system and FTPHelper (graphical browsing & retrieve FTP data)

d. FTP site (System software, data ingest, creation of CD-Rs)

1. Built ISEE 3 mag field flat ASCII files for 1984-1990 years for ANON/FTP site; position of spacecraft in HGI system was added.

e. Cosmic and Heliospheric pages and services

f. Geomagnetic and Magnetospheric Models through network

g. Space Physics home page

1. Building of new set of main space physics home pages was finished.

12. Meetings, Presentations, and Publications

a. D. Bilitza chaired a session on operational ionospheric models and data ingestion during the URSI General Assembly in Maastricht, Netherlands and presented a paper on updating IRI with data and a poster (Bilitza, Papitashvili, Grebowsky, Schar) on the ITM data on ATMOWeb. At the poster many colleagues were interested in the ATMOWeb system and the recent enhancements (filtering and scatter plots).

b. D. Bilitza attended the IRI Task Force Activity in Trieste, Italy and presented four papers entitled: "Representing ionospheric variability in IRI"; "Ionospheric data available online through ATMOWeb"; "An example of validation of the storm response in IRI 2000"; and "A correction for the IRI topside profile function". Participants strongly requested that the IRIWeb interface be updated to the IRI-2000 version; this was also mentioned by several IRI users during the URSI meeting in Maastricht.

c. D. Bilitza visited the Institute for Atmospheric Research in Prague, Czech Republic to discuss a joint project to develop a model for the solar cycle variation of ionospheric temperatures and ion composition.

d. D. Bilitza was also the author of a 40-page review of "Ionospheric Models for Radio Propagation Studies" that was published in the "Review of Radio Science 1999-2002" that was released during the General Assembly.

REQUEST HIGHLIGHTS:

a. E-mail responses were made to nine requesters related to Science data, SSC, Spacewarn and CCSDS:

b. Due to a request, an acqsci obtained information from J. Friedlander about the Apollo 13 kinescope 16-mm films. There is no BD, for this or the other 'Kinescope' data sets, except that there is one for Apollo 11 (PSPG-00119). Reviewed two Apollo videos; one contains the requested footage from the kinescope film. Requester was referred to Request Coordination Office to order and pay for the videos. Information developed during this request service were given to D. Williams (the usual acqsci for Apollo, but he was out on vacation during this request). The request is done, but we have video tapes that aren't entered into the NMC, and this needs attention.

ACTIVITY LOG:

The NSSDC models sites on anonymous ftp and on the Web continue to be very popular:

2001	ftp RAID	Model	atm	geom	WWW ion	rad	solar	CGM	IRI	MSIS	IGRF	TRAP	hpage
Nov	49425	4175	854	627	2076	260	202	977	2333	13066	612	366	66026
Dec	36022	3736	701	613	1874	257	175	6485	1001	3599	304	125	61423
Jan02	154622	4926	968	819	2377	324	273	1505	3399	8270	454	244	69610
Feb	116199	7092	1078	659	3651	619	525	1106	2322	41633	475	621	71078
Mar	164875	10177	1869	1462	4682	640	740	717	1659	5257	528	161	73074
Apr	245162	6863	1134	884	3665	353	319	899	2220	1162	1266	122	74803
May	275487	4426	754	537	2208	305	261	1050	8238	944	1346	93	76584
Jun	133327	6892	891	709	3693	388	371	47412641		1055	702	84	78218
Jul	230906	8669	1559	993	4133	538	499	645	4486	570	491	42	
Aug					701	1953	983	510	65				

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----- ISIS -----------

Month	Files	GBy	Total	WWW	I	AE	Aer	DE	Exp	Hin	I/A	OGO	SM	SNOE
Oct	3,485	2.0	516.5	5178	I									
Nov				5339	I	886	12	1389	5	9	16	6	48	
Dec					I	18	7	61	6	41	64	1	1937	
Jan02	26,410	15.1	531.6	5640	I	1396	4	3154	11	44	13	47	379	29035
Feb	10,342	6.1	537.7	5736	I	25	5	371	3	22	836	8	29	4176
Mar	20,492	12.0	549.7	5917	I	179	18	48	99	83	78	27	17	14263
Apr	17,460	9.2	558.9	6057	I	50		215	15	5	22	1	5	16365
May	19,126	15.4	574.3	6257	I	52	9	271K	34	30	15	19	213	2

Month	Files	GBy	Total	WWW	I	AS	A2	DE	EX	I1	O6	ATW	I	AE	DE	EX	HI	IA	O6	SM	SO
Jun	16,552	9.5	583.8	6451	I	2	0	1	0	0	0	48	I	25	182	622	25	32	7	1	26
July	17,192	14.9	598.7																		
Aug	21,077	12.3	611.0																		

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f. WWW file and plot accesses during May 2002 (and the yearly totals)
for interplanetary COHO-related data from COHOWeb, CDAWeb, and NSSDCFTP:
Deep Space (Ulysses, Voyager, Pioneer, etc.): 12,211 {2002 Total: 36,911}
Geospace (IMP-8, Prognoz, ACE, WIND, SOHO): 57,214 {2002 Total: 199,363}
(Later values not available)

PROBLEMS OR AREAS OF CONCERN: The source of the problem with the Ulysses CDF files on CDAWeb is presently unknown. Information on software used by C. Tranquille (ESTEC) to produce these files has been requested.

UPCOMING MILESTONES/EVENTS: Task staff plan to attend Ulysses Science Working Team Meeting 48 and the COSPAR 2002 conference next month in Texas.

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Last Revised: *Friday, 13-Sep-2002 10:26:47 EDT [NAJ]*

Task Assignment 99-301-00
August 2002

COMPUTER SYSTEMS MANAGEMENT TASK
GSFC ATR - C. Barrett
Raytheon ITSS Task Leader - J. Jacobi
Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objectives of this task are to provide systems analysis and technical support to the operational computer activities of the NSSDC; to maintain existing hardware and system-level software to ensure the optimal performance and utilization of its resources and connectivity to its computing sites; to integrate new hardware and system-level software into existing systems to achieve upgraded capabilities and state-of-the-art facilities; to administer specialized software such as data base and optical disk management systems; and to provide users with the necessary documentation, training, and assistance so that NCF resources are fully utilized.

SIGNIFICANT EVENTS:

- Staff completed development of an account request Web page and related processing software.
- Staff upgraded XFILES to the current version of the Tru64 operating system.
- Staff investigated software RAID solutions under Linux for use on the new MAIL630 system.
- Staff installed the most recent versions of Java and Netscape on MESSIER.
- Staff studied interoperation and startup of X, Gnome, and CDE.
- Staff prepared shout for return to vendor by overwriting the data on the hard disks.
- Staff completed a program to examine filesystems for anomalous conditions which could effect system security.
- System staff continues to investigate problem with Ultrium tape drive.
- Staff continued to perform routine system administrative duties, including backups, application of stupid and confusing software upgrades and patches, providing assistance to users, and maintaining the IP spreadsheets and equipment database.

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Task Assignment 99-302-00
August 2002

SYSTEMS NETWORKING AND SMALL SYSTEMS
GSFC ATR - G. Goucher
Raytheon ITSS Task Leader - R. Dunlap
Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objective of this task is to provide network engineering support to Code 600.

SIGNIFICANT EVENTS:

- Staff planned and implemented the NDADS ethernet network to include computer room E220 in building 28.
- Staff ordered and received MAC and PC parts for the Raytheon computer upgrades.
- Staff continues work to develop the Code 630 Web-based equipment data base.

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Task Assignment 99-303-00
August 2002

NSSDC COMMON DATA FORMAT (CDF)
GSFC ATR - D. Han
Raytheon ITSS Task Leader - M. Liu
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to carry out computer science research, develop computer software and provide user support for the NSSDC Common Data Format (CDF).

SIGNIFICANT EVENTS:

1. Feedback from a user of our just released XML-based CDF Markup Language (CDFML) package was received. The overall impression was quite good. However, a minor modification was needed to handle a special situation that a one-dimensional variable has only one data element.

2. A study has begun to see how CDF can provide better support to ISTP community, in term of creating ISTP compliant datasets.

3. About six user requests/questions were received this month.

CONCERNS AND PROBLEM AREAS:

1. The GZIP compression/decompression option is turned off for 16-bit DOS/Windows 3.x due to its memory constraint.

2. An unusual problem occurs with the older Microsoft C 7.00 compiler in one of the EPOCH parsing routines on DOS/Windows 3.x. It occurs while using the floating point functions and type casting. It is suspected that the Microsoft executables may be getting too large and will require memory overlaying.

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Task Assignment 99-304-00
August 2002

PLES
GSFC ATR - N. James
Raytheon ITSS Task Leader - Dr. D. Williams
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to maintain data bases and metadata (NMC, WWW) for planetary, Earth sciences, and selected astrophysics data (HEASARC, EUVE, HST), provide request support and coordinate updates of user interfaces, coordinate WWW activities, support internal and external data base users, assure data set quality, coordinate planetary data acquisition and Earth science data transition, support educational activities, and coordinate publications.

SIGNIFICANT EVENTS:

- The NSSDC WWW server had a total of 9,777,185 error-free accesses logged for August 2002, an increase of 9.4% compared to July 2002.
- Task staff responded to over 220 E-mail queries and telephone calls from external users and the Request Office.
- A task member reviewed solar system chapters and lesson plans for the Smithsonian "Earth in Space" book.
- Task staff added two new books to the online book page.
- Task personnel assisted a summer intern with the upload and markup of a number of pages destined for inclusion on the NSSDC Image Catalog.
- Task member updated information on the failed CONTOUR mission as status reports were made on the search for the spacecraft.
- The brief description for the Venera 11 lander (1978-084D) was modified to remedy an incorrect pointer to the Venera 11 orbiter.
- Tony Phillips of Science at NASA did an online article on the Moon Trees which led to numerous E-mail messages, telephone calls and interview requests over the course of the month.
- Task personnel made numerous updates to the Moon Tree pages as a result of information recieved due to the renewed interest in the Moon Trees.
- The full time task member was on vacation for much of the month.

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Task Assignment 99-305-00
August 2002

NASA SCIENCE OFFICE OF STANDARDS AND TECHNOLOGY (NOST)
GSFC ATR - D. Sawyer
Raytheon ITSS Task Leader - J. Garrett
Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objective of this task is to maintain and expand the NOST so that it can effectively respond to the standards needs of the NSSDC community.

SIGNIFICANT EVENTS:

NOST Archiving Tools Suite - Staff has

- Converted and tested the main management component (the Launcher) of the Multifile Package Group Analyzer (MPGA) to a C++ object so it may accommodate new multi-file generation capabilities. Began coding the basic modules for validating user inputs and generating multi-file AIPS. The components expected to be built include the Launcher, Input-Validator, the Cleanup-Module, and the AIP-Generator.
- Worked on installing XML C++ libraries to *optionally* be used with the MPGA. Had problems building these libraries and found information on how to solve the problem, but because the issues are not critical to the implementation of the MPGA and require system administrator privileges to fix it has been temporarily sidelined.
- Participated in meetings regarding the upcoming tape migrations. Discussion centered on determining needed attributes and sources of the attributes.

ISO Data Archiving - Staff has

- The OAIS Reference Model document has been installed on the CCSDS and the ISO Archiving Web sites.

CCSDS On-Line Information System - Staff has

- Working with current contract holder to maintain the current CCSDS.ORG Web site and transition to the new Web site designed by the new contractor.
- The following new documents and associated support materials were posted to the CCSDS.ORG Web site:
  - CCSDS 101.0-P-5.1: Telemetry Channel Coding. Pink Sheets (Draft Update of Standard). Issue 5.1. June 2000.
  - CCSDS 131.0-R-1: TM Synchronization and Channel Coding. Red Book (Draft Standard). Issue 1. June 2002.
  - CCSDS 231.0-R-1: TC Synchronization and Channel Coding. Red Book (Draft Standard). Issue 1. June 2002.
  - CCSDS 401.0-P-S2002: Radio Frequency and Modulation Systems - Part 1: Earth Stations and Spacecraft. Pink Pages (Draft Update to Standard). Issue S2002. April 2002. (Installed and then removed awaiting corrections, and then new version installed)
  - CCSDS B20.0-Y-2: Proceedings of the CCSDS RF and Modulation Subpanel 1E on Bandwidth-Efficient Modulations. Yellow Book (Minutes). Issue 2. June 2001. (Installed one version and then replaced with a new version)
- The following historical CCSDS documents were posted to the CCSDS.ORG Web site.
  - CCSDS 911.2-R-1: Space Link Extension -- Return Virtual Channel Frames Service Specification. Yellow Book (Minutes). Issue 1. November 1997.
  - CCSDS 912.3-R-1: Space Link Extension -- Forward Space Packet Service Specification. Red Book (Draft Standard). Issue 1. November 1997.
- Added registration pages to the 2002 fall set of CCSDS meetings Web site. This was followed up by at least daily updates of registrations.
- Posted a large number of updates to the 2002 fall set of CCSDS meetings Web site, primarily dealing with meeting date changes, and updated logistics and agendas.
- Sent email to Panel 2 and Panel and Subpanel chairs, for forwarding to all members, requesting that they register by 30 August for meetings and hotel. Followup message sent detailing extension of deadline to 14 September.
- Continued monitoring of Docushare. Still no activity except for the Web creation team.
- Monitored the log files for the CCSDS.ORG WWW-server for any indications of problems or security incidents and continued generating the required data to develop monthly statistics.
- Installed Panel 3 Space Link Extension (SLE) status and review materials on CCSDS.ORG Web site. Awaiting

notice of approval by Panel 3 Chairmen that they can be linked into Panel 3 Web page.
- Participated in Web development team meetings with personnel from the current contractor. Comments received on the new Web site design were discussed and design updated were investigated.

CCSDS Standards - Staff has

- Participated in the NASA Data Standards Steering Council (DSSC) meeting.
- Reviewed several iterations of GSFC and JPL proposals for CCSDS Reorganization. Participated a GSFC CCSDS Group meetings and GSFC-JPL teleconferences to discuss these proposals and budget priorities.
- Participated in GSFC Standards Coordination Group meeting at end of previous month.

Goddard Technical Standards Coordination - Staff has

- Participated in a GSFC Technical Standards meeting.
- Updated the Web site to detail a number of completed and upcoming GSFC reviews of standards.

STATISTICS: CAOIS: As of 31 August 2002, there were 439 Data Description registration numbers assigned. Of these about 30 of the Data Description registration numbers are reserved for NSSDC use during the Cygnet migration, 45 are reserved for IMAGE ingest, and 26 for ISIS ingest. Data Description Packages for these must be generated.

UPCOMING MILESTONES/EVENTS:

NOST Archiving Tool Suite: Staff will

- Complete a prototype of the main AIP Generator Component, less the specific attribute generators and groupers for specific missions.

ISO Archiving Standards: Staff will

- Update the Web site to provide information on new archiving thrusts.
- Update Web site with information on upcoming international meeting.

CCSDS XML Group: Staff will

- Continue low level of support for possible CCSDS XML prototype effort.
- Continue work to determine possibility of XML Workshop at upcoming CCSDS Workshop. Support workshop planning as necessary.

CCSDS Standards: Staff will

- Continue to provide comments on new drafts of the CCSDS Concept of Operations, CCSDS reorganization, and NASA CCSDS budgeting priorities and the DSSC reorganization.

Goddard Technical Standards Participation: Staff will

- Participate as needed in the GSFC Standards Working Group, the NASA Data System Standards Council and the GSFC Standards Review Boards.
- Continue updates for the Web site for GSFC Standards Coordination.

OLIS: Staff will

- Participate in upcoming CCSDS.ORG Web site redesign meetings as requested. Develop additional proposals for improving the CCSDS Web site as required.
- Add additional documents to the CCSDS Web site as they become available from the CCSDS editor.

CAOIS: Staff will

- Register new data description packages as they are submitted. Note that Cygnet migration, IMAGE ingest and ISIS ingest descriptions still need to be submitted.

Formats Evolution Process - Staff will

- Updating the FEP Web site if any new material is submitted.

ISSUES:

OLIS: Staff will

- Web support for the months of October and November is currently not provided. Only option at this point is to extend current subcontract without additional funding. Since majority of funds have already been expended, this option will result in several months of very minimal Web site support.
- For the CCSDS OLIS, there has been very little testing of Docushare by those outside the Web team. In simple testing, we've maxed out the directory objects available in the test version. We need to obtain a licensed version to continue work. Also likely that we should provide training at the October meeting to all CCSDS members if we want to use this.

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Task Assignment 99-306-00
August 2002

INFORMATION (METADATA) SYSTEMS DEVELOPMENT AND UPGRADES
GSFC ATR - Dr. J. Thieman
Raytheon ITSS Task Leader -
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to define and develop information systems and the interfaces thereto, maintain these systems and interfaces and support the generation of reports therefrom, and recommend and participate in the planning of upgrades to necessary support systems and software as appropriate.

SIGNIFICANT EVENTS:

- Update stored procedures and class methods were written for the MEDIA, MED_TAPE, and MED_RELATIONS tables in JIN.

- A bug in SATX and FILX (which was listing every dataset in a set of merged datasets) and two bugs in JEDS (one which caused users to be unable to update the publication title and the other which caused an error to occur when someone entered a line in excess of 80 characters in a free-text field) were fixed.

- A new directory structure was created on decaf to accommodate JIN and other equivalent internal interfaces.

- A port of some of the preliminary code for JIN was successfully done to decaf.

- The JIN UML model from Rational Rose was placed under configuration management.

- The use case specifications and initial implementations for adding and updating tapes, adding and updating associations were completed.

- The use case specification for 'Sign-in Item' and 'Sign-out Item' was completed following several phone interviews with R. Buck (Raytheon ITSS) and a sequence diagram for the process was begun.

- The UML design of batch add for tapes for JIN was completed.

- Fixed the contact information on three astrophysics datasets which were causing the MasterCatalog servlet to blow up.

- Reviewed a script written by J. Kodis (Raytheon ITSS) that will allow people to submit user account requests via the Task Request system.

- Populated NMC with disciplines for recently launched spacecraft.

UPCOMING MILESTONES/EVENTS:

- A demonstration of JIN will be given to operations personnel.

- Work will continue on JIN.

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Task Assignment 99-307-00
August 2002

SUN-EARTH CONNECTION EDUCATION FORUM (SECEF)
GSFC ATR - Dr. J. Thieman
Raytheon ITSS Task Leader - Dr. S. Odenwald
Raytheon ITSS Group Manager - L. Mayo

TASK OBJECTIVE: The objective of this task is to provide administrative support of the SECEF managers and assistance in preparing for educational outreach events, seek opportunities to leverage SECEF activities for broad national impact, and assist in publicity for the SECEF by developing content for a Web site and publications.

SIGNIFICANT EVENTS:

- Staff is coordinating the next Sun Earth Day - March 20, 2003.
- Staff is planning for 2004 Venus Transit.
- Staff is preparing SECEF Phase II budget and project activity reports for November 1, 2002.
- Staff participated in OSS Education Council meeting.
- Staff participated in SECEF bicoastal meeting.
- Staff met with SSE Forum to discuss partnerships.

UPCOMING MILESTONES/EVENTS:

- Staff will continue planning for the 2003 Sun-Earth Day.
- Staff will continue planning for Venus Transit 2004.
- Staff will continue with scheduled EPC meetings.
- Staff will submit November 1, 2002 Phase II reports to SECEF.

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Task Assignment 99-312-00
August 2002

ANALYSIS SUPPORT FOR THE IMAGE MISSION
GSFC ATR - Dr. J. Green
Raytheon ITSS Task Leader - L. Garcia
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of the Analysis support for the IMAGE Mission task are to maintain and update local copies of the IMAGE software suite, create RPI data analysis software, and to create software to be used in correlative studies between IMAGE detectors and between IMAGE and other missions. This task will also support the synthesis of data and theory in the study of Earth's magnetosphere through creation of unique data products and services. This task will make available appropriate documentation for all of these objectives and will support the IMAGE Science Center Web site.

SIGNIFICANT EVENTS:

- Staff responded to reviewer's comments and resubmitted to the editors of the "Journal of Geophysical Research a paper on correlations of RPI and EUV observations of plasma convection tails".

- Staff fixed the database of IMAGE-RPI dynamic spectrogram samples taken by a summer intern. This database now includes the latest geophysical parameters.

- Staff updated the UDF file selection widget in the IDL Specwidget program.

- Staff developed code to attempt to determine the direction of the electric field impinging on the IMAGE-RPI antennas using the calibrated X, Y, and Z intensities.

- Staff aided programmers at the University of Massachusetts Lowell in the upgrading of the BinBrowser program by beta-testing the version for Mac OS X.

- Staff worked with C. Gurgiolo and programmers at Los Alamos National Lab, and the University of Maryland to build the UDF reading routines for IDL on Mac OS X. Work continues in getting both versions of these UDF readers to work on Mac OS X and getting both versions to work with IMAGE-RPI data.

- Staff posted four new abstracts, 13 new PDF documents, and updated the URSI meeting page in the publications section of the IMAGE Science Center site.

- Staff fixed several errors in the style sheet for the IMAGE Science Center Web site which was preventing some browsers from displaying the information correctly.

- Staff made several fixes to the IMAGE Science Center home page to make it compliant with section 508 guidelines.

- Staff posted an announcement of the upcoming IMAGE Science team meeting.

- Staff posted an announcement of the upcoming HENA team meeting.

- Staff posted an abstract/paper by Benson et al.

- Updated and modified dozens of pages on the IMAGE Science Center Web site in order to make them compliant with section 508 guidelines.

- Eliminated the map of GSFC and the directions to GSFC from the IMAGE Science Center Web site in compliance with directives after 9/11/2001.

UPCOMING EVENTS/MILESTONES: Some pages still need to be brought into section 508 compliance (through simple markup changes). However, there are a number of things (movies being the biggest concern) for which no simple fix is available. These will need extensive modification in order to be brought into compliance.

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Responsible Official: *Dr. Joseph H. King, Code 633*
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Task Assignment 99-313-00
August 2002

COMMUNITY COORDINATED MODELING CENTER
GSFC ATR - Dr. M. Hesse
Raytheon ITSS Task Leader - M. Kuznetsova
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: This task will provide science and software support for Community Coordinated Modeling Center (CCMC). Specific support includes developing and testing of simulation codes for space weather models, performing simulations of realistic space weather events, providing visualization and analysis software, performing comparison of modeling results to satellite measurements, performing research in space plasma physics.

SIGNIFICANT EVENTS:

- Staff added fieldline tracing to processing of BATSRUS realtime run. The ionosphere images now show the polar cap as defined as the area with open field lines emanating around the magnetic poles.

- Staff added the calculation of estimated Hall currents to the Weimer-2K model and added ASCII output of model data.

- Weimer-2K and BATSRUS (version 7.42) with CCMC modifications, together with the current IDL visualization and fieldline tracing software have been prepared for hand-off to the Air Force RPC (mailed 9/3/2002).

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
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Task Assignment 99-315-00
August 2002

Automated Vulnerability Scanning and Data Integration/Reporting System DB Repository and Reporting/Publishing Sub-task
GSFC ATR - R. Schneider
Raytheon ITSS Task Leader - D. Baldridge
Raytheon ITSS Group Manager -

TASK OBJECTIVE: This task will provide automated uploading of ISS scan database files into a central composite database. A user interface for generating vulnerability reports will also be provided.

SIGNIFICANT EVENTS: Work continues to be stopped.

UPCOMING MILESTONES/EVENTS: Waiting for direction from ATR to continue effort.

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
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Task Assignment 99-316-00
August 2002

Solar Nebula SiO
GSFC ATR - J. Nuth
Raytheon ITSS Task Leader - A. Ali
Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objective of this study is to carry out research and analysis of SiO cluster mass distributions from data obtained using the molecular beam apparatus located at Penn State University. This experimental setup produced a unique data set on the cluster distribution of SiO clusters produced by partial condensation following laser evaporation. Future experiments will concentrate on extending these basic experiments to isotopically labeled systems using pure Si[28] and enriched oxygen isotopes. These experiments are highly relevant to the origin of oxygen isotopic anomalies in the early solar nebula and present a very complex analytical problem.

SIGNIFICANT EVENTS: We are involved in the analysis of (SiO) cluster distributions. Based on thermochemistry, the SiXOY clusters do not appear as oxidation of pure (SiO)X molecular species by O2. Further measurements would be undertaken in deciding this mechanism for growth.

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Curator: *Natalie Jaquith*
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